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## BRIEFER ARTICLES.

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### CURIOUS LEAVES.

THE leaves of trees not infrequently present sports or deviations from the ordinary types characteristic of the species, and occasionally these sports are of botanical interest. A few collected near Dayton, Ohio, during the autumn months of last year, are here figured.

A twig from an American elm has a terminal leaf with its basal margins grown together, forming a short funnel-like cavity, with a very oblique upper rim. The third last leaf presents a similar funnel-like cavity at its base, but the leaf blade is supplied with two midribs and leaf tips. The second last leaf shows two midribs and leaf tips, but the basal margins of the leaf blade have remained separate (*figs. 1, 2*).

Near the tip of a young shoot from a stump of the white ash were small leaves with the usual pointed leaflets. In the figure (*fig. 3*) all but one of these leaves have been removed. The next lower pair of leaves, however, has most of the leaflets notched at the tip. The most interesting one of these is the terminal leaflet of the right hand leaf, which, although slightly notched at the tip, bears itself a second terminal leaflet pointed in the usual way.

A third sport occurred in the leaves of some of the minor branches of the ordinary dogwood (*fig. 4*). Here the leaves instead of being pointed in the usual way have assumed the form of the involucre bracts which are taken by the unwary for the petals of the flower. Their color, however, was green.

A study of numerous sports of this kind has developed the following facts: In trees with opposite leaves it rarely happens that only one leaf of a pair deviates from the type form. Usually both leaves show the same, or at least similar variations. In the case of both trees with opposite and those with alternate leaves several successive nodes usually show either the same or similar variations. Several of the neighboring branches, and even branches of neighboring trees, may present the same variation, but in those cases the variations seem

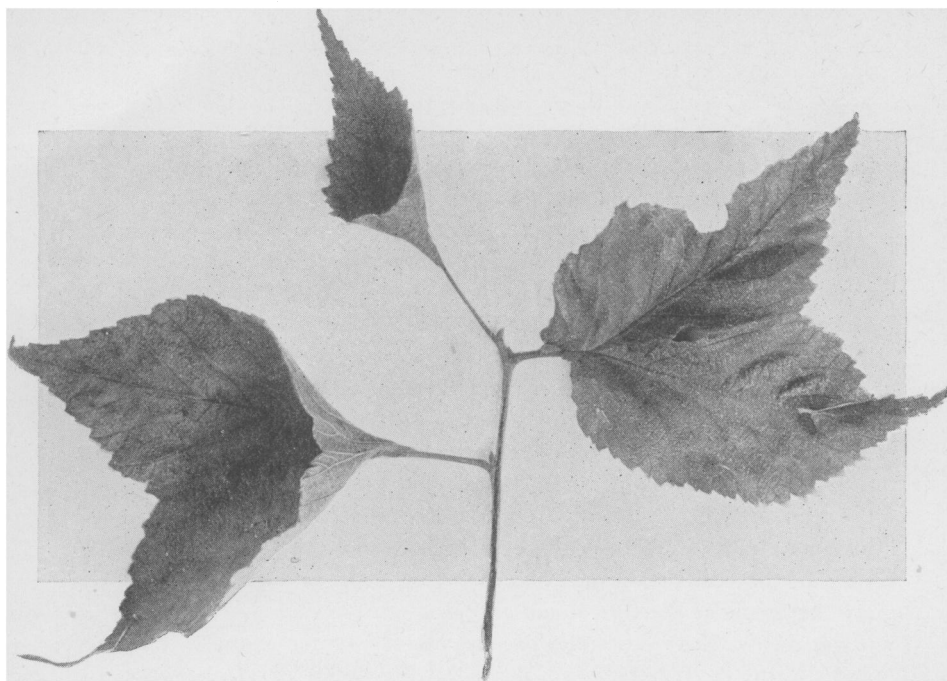


FIG. 1.

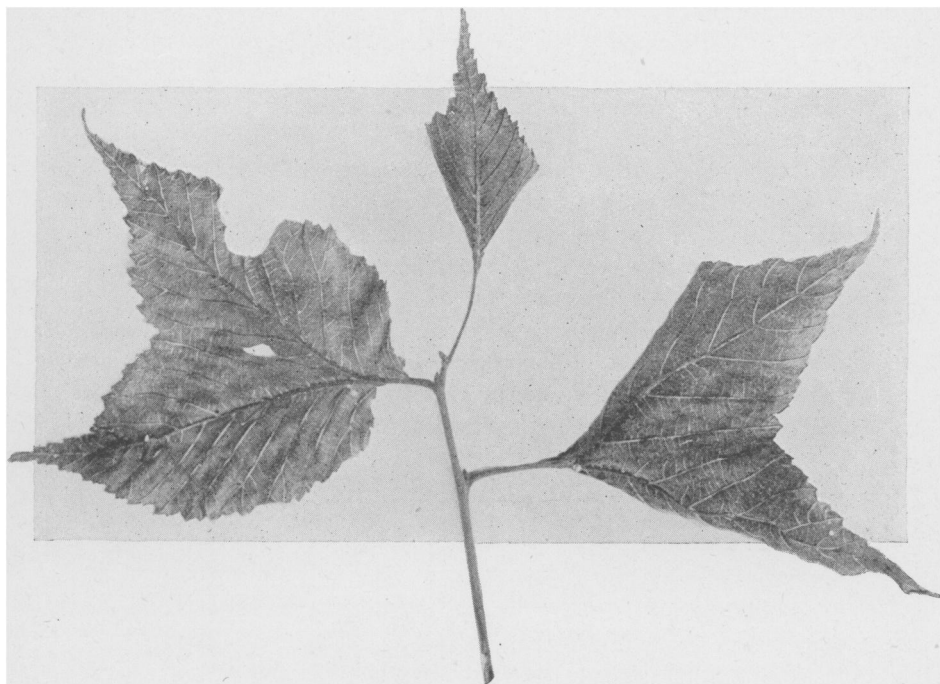


FIG. 2.

to have been very nearly synchronous, judging by the position of the sports along that part of the branches formed during the year.

The appearance of similar sports along successive internodes has led to the belief that each node and its appendages may be considered a plant unit of which the next node is an offspring. In this sense the successive appearance of similar sports along the same branch may be looked upon as a case of heredity. The simultaneous appearance of similar sports in neighboring branches or trees, however, indicates that this explanation is not sufficient. In order to arrive at a proper basis for the interpretation of these facts it is necessary to know the life history of the plant. For instance, at what time of the year does the elm leaf begin to differentiate its cells into those which shall become a part of the midrib, and those which shall not? At what time of the year do the leaf blades begin their development? When are the forms of the tips of ash and dogwood leaves determined? Is it not during the vicissitudes of autumn, the winter months, and very early spring? It is believed that a further study of this subject will indicate that freaks of a marked kind often accompany very marked meteorological irregularities, and that there is often a vital connection between the two.

In a similar manner it has been noticed that ash twigs with three leaves at a node are formed more commonly on the young shoots which spring up from the stump of the tree the first year after the tree has been cut down. In other words, while we know as yet very little about the conditions which give rise to sports, it is beginning to be evident that even these evanescent freaks of nature stand in relationship to other conditions as cause and effect; that they are sporadic attempts on the part of nature to accommodate itself to variant conditions at present ill understood.

These sports belong, perhaps, to the same order as those peculiar sports among gold fish so popular with the Chinese, gold fish with tripartite tail, caused, it is said, by shaking up the eggs of fishes violently before they are hatched.—AUG. F. FOERSTE, *Dayton, Ohio*.

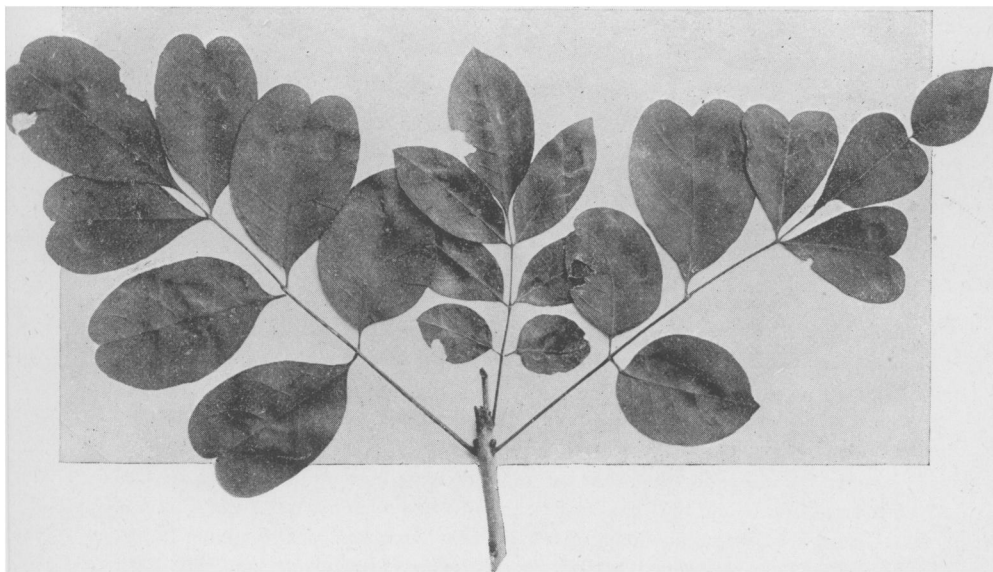


FIG. 3.

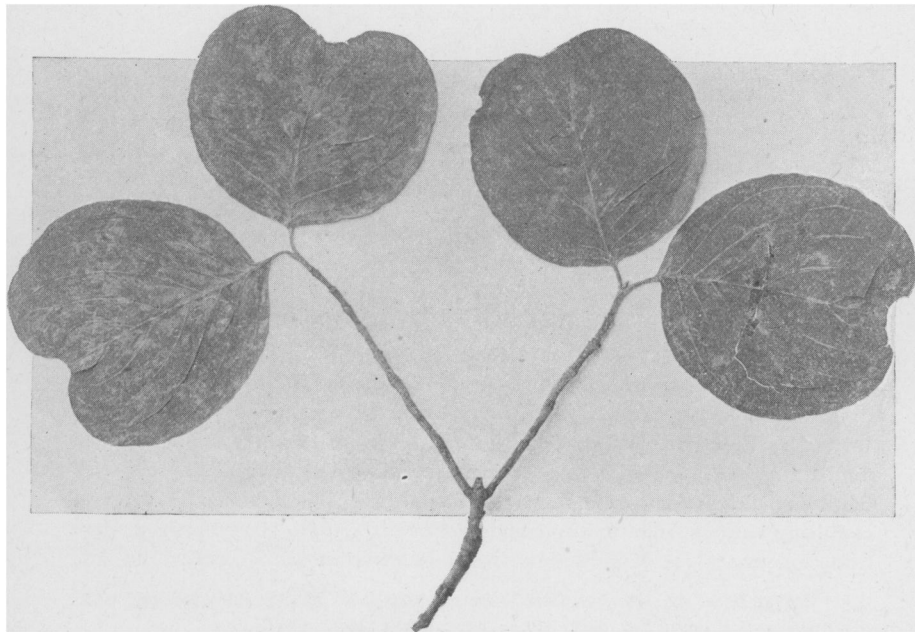


FIG. 4.